Chapter 2: Assessments & Summary Data

In Wisconsin, surface waters are assessed to determine attainment for each of four designated uses: Fish and Aquatic Life, Fish Consumption, Public Water Supply and Recreation. This determination of the potential use for each of the use designation categories, often called “use support status”, is described by one of the following: fully meeting, partially meeting, not meeting, threatened, insufficient information, or not assessed. Regional staff apply assessment protocols to available data to make a determination of the assessment status. Monitoring data is evaluated and assessments are written up in water quality management plans, which are published every five years.

In 2004, the new Waterbody Assessment, Display and Reporting System (WADRS) was launched to store and manage assessment data, including the state’s 305(b) and 303(d) information. This system will provide continual updates of assessment data by regional staff and provide a mechanism to conduct on-line water quality management planning in the future.

http://dnr..gov.wi/org/water/wm/watersummary/Waterqualityassessment.html

This 2004 report describes the state’s new WADRS database, its status and future plans for system implementation and data availability. For further information on state designated use assessments, criteria, and use of available data, please refer to the online version of Wisconsin’s 2002 Water Quality Report to Congress and/or request a hard copy of the report from the DNR’s Bureau of Watershed Management.

Waterbody Assessment Display and Reporting System (WADRS)

Development of the Waterbody Assessment and Reporting System (WADRS) was funded in 2002-04 through two Clean Water Act Section 104(b)(3) grants from USEPA. WADRS is an integrated a tabular and spatial database (Oracle 9i, ArcGIS) designed to hold water quality assessment data for rivers, lakes, Great Lakes shoreline miles, and wetlands. WADRS can store assessment information from multiple disparate sources within one framework that is GIS enabled. The assessment data are linked to spatial features, which allows that data to be viewed spatially both within WADRS, as well as within webmapping applications and the Surface Water Integration System (SWIS) (see Chapter 1).

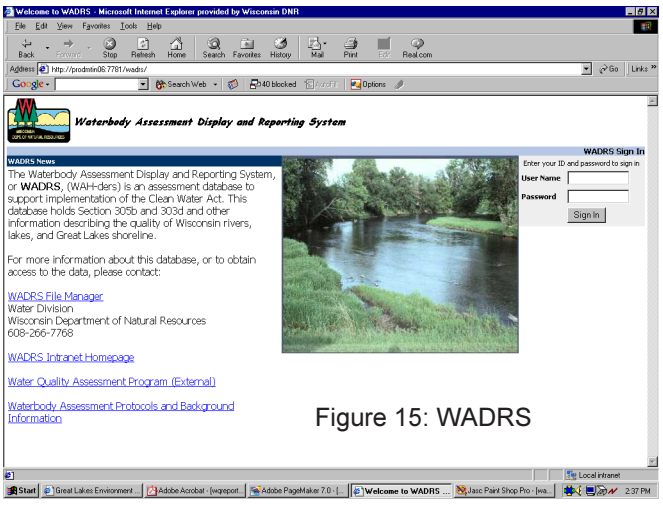


Figure 15: WADRS

WADRS Goals

The goals of WADRS include:

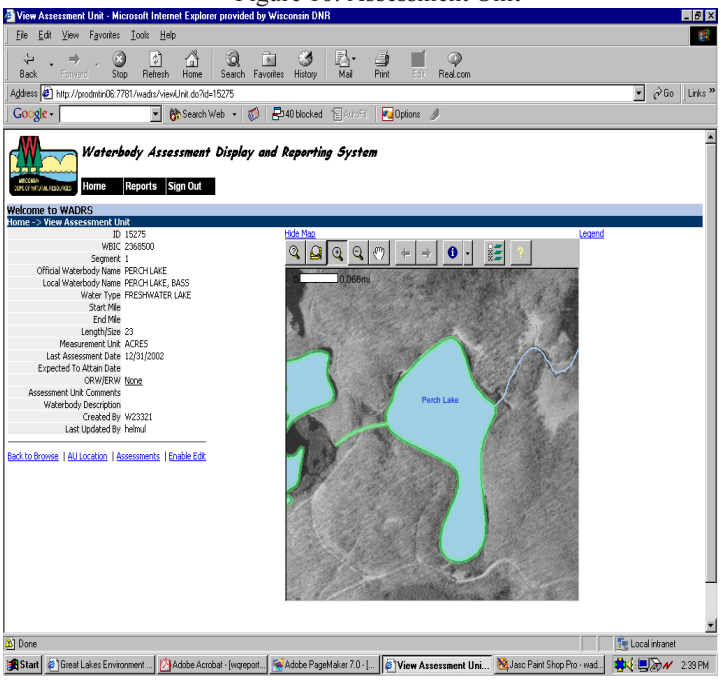
- Providing an integrated data system to improve water quality assessment data integrity and to remove state-level inconsistencies between 305(b) and 303(d) reporting.
- Provide a system that will both meet federal *Integrated Reporting* requirements for 305(b) and 303(d) and provide easy-to-use tools to enhance resource management.
- Provide a data system that is accessible over the intranet for easy access by DNR staff statewide; system features restrict access and make read-only data widely available to users other than staff responsible for assessing waterbodies.
- Provide a mechanism to make assessment data readily available to the public (when the data is at an acceptable level of accuracy) to enhance public involvement in water quality and watershed activities.
- Provide a flexible system that will accommodate changes in decision rules for use designations and water quality standards (fish and aquatic life, public water supply, recreation, fish consumption) as needed.

- Enable the use of tabular and spatial tools to integrate water quality assessment data with the state's 1:24,000 scale hydrography data layer.

By integrating assessment data with the linear and polygonal spatial features that represent the state's rivers and lakes, WADRS enables the spatial display (or mapping) and spatial analyses critical to sound decision making (see Figure 16).

Assessment Units

Figure 16: Assessment Unit



Assessment unit records have discrete components, including the assessment unit size. Because the AU is "geolocated" (mapped), other data like where the AU is in the state in relation to boundaries for counties, management basins, water management units, watersheds, and hydrologic unit codes (HUCs) are generated automatically by other GIS datalayers. This feature cuts down on human-induced data entry error.

The assessment unit's designated uses (fish and aquatic life, public water supply, recreation, and fish consumption status) are defined by "state use categories". For Fish and Aquatic Life, these state use categories include COLD, WWSF, WWFF, LFF, LAL, Default. The AU's current use and potential use are compared, resulting in a supporting use determination of fully, partially, not, threatened, insufficient information or not assessed. Linked to this decison is a data quality factor, which includes information about the data type (biological, habitat, and physical/chemical) and "integrity", an associated confidence level, which range from one through four, with one being the lowest and four, the highest. Related to this information is a place where staff can provide detailed references for documents or data sources used to make these decisions. Multiple data sources can be documented.

Knowledge of the type of impairment affecting a waterbody, the pollutants involved, and the sources of those pollutants and impairments is critical to effectively manage the water. WADRS tracks impairments, pollutants, and sources that relate to the federalUSEPA lists (for national consistency). Staff can also provide detailed narrative information about the sources. If an impairment and pollutant are identified for a given waterbody, the user then has the option of populating relevant "303(d)" listing, TMDL status, TMDL implementation date and water quality standards attainment dates, as available.

Planned Activities - 2005-2006

The Water Division anticipates that WADRS will contribute substantially to improvement of the state's waterbody analysis and management. WADRS has provided the first *spatial view* of the state's assessment units, ORW/ERW, 303(d) waters, trout waters, and codified uses in an interactive mode. This persepctive has shed light on consistency issues between these datasets and raises some policy issues. Without viewing waterbodies in a spatial context, it is quite difficult, if not impossible, to attain an equivalent perspective as with a map view.

Development of WADRS to maintain use designation data is one of several interrelated steps in the continuing evolution and improvement of Wisconsin's assessment program. The following are activities related to the assessment of waterbodies:

- Continuing rule revision process for NR102/NR104 Water Quality Standards;
- Ongoing evaluation of the methodology for use designation assessments for 305(b) and 303(d) listings;
- Development of recreational use designation standards, criteria, assessment protocols and use assessments for lakes, rivers and Great Lakes shoreline miles;
- Continuing adaptation to changes in federal guidelines and reporting requirements related to these and other standards and water quality criteria issues;
- Ongoing development of a statewide strategic monitoring plan for all surface and groundwater related needs.

Long-term plans (2004-2006) for using data in WADRS for public outreach include developing "rivers pages" for each named river in the state, designed using a process now in in development for the Lakes Program. This process involves generating a rivers page "on-the-fly" from WADRS and other pertinent data systems that hold monitoring data stored at DNR. These pages will be available through WDNR's external website in the respective waterbody's "basin page" in 2006.

Impaired Waters Screening Criteria

http://dnr.gov.wi/water/wm/wqs/303d/303.htm

Waters identified as "impaired" under Section 303(d) of the Clean Water Act include those that have either quantitative water quality standards violations or aquatic life and/or fish consumption use designation problems combined with that water not meeting its codified water quality classification. Once a waterbody is on the impaired waters list, it is categorized according to the factors causing impairment. Within each category is a description of the strategy the Department may use in development and implementation of TMDLs.

2004 Methodology for Placing Waters on Impaired Waters List

As required by section 303(d) of the Clean Water Act, states are to submit a list of impaired waters to EPA for approval. WDNR has submitted a list to EPA every two years up to 2004. Wisconsin is operating under the same federal regulations as used in 1998 and 2002. The WDNR has posted its Methodology for Impaired Waters on its website.

Chapter 3: Rivers and Streams

Assessment Summary

In 2002 the state reported a total linear stream mileage of 57,698, which includes intermittent and perennial waterbodies. About 44 percent (24,442 miles), of these miles were assessed at that time, and only a portion of the assessed miles (about 30 percent) have been monitored since 1997. Assesssment decisions on the remaining 70 percent of assessed miles were based on evaluated data, or data more than five years old and/or from interpretation of field surveys or other data collected by external individuals or agencies.

Also, in 2002 WDNR reported all Wisconsin streams were assessed for fish consumption based on evaluated information. Due to the general fish consumption advisory for mercury, all waterbodies were assumed to not meet this designated use.

During the 2002 reporting period assessments for recreation or public water supply were not conducted. However, data gathering efforts through the Beach Program for Great Lakes shoreline health, as well as an inland water beach study, and through the state's Source Water Assessment and Drinking Water Program, will provide data for future use. Assessments will occur after pathogen water quality criteria have been developed and protocols for assessing public water supply and recreational uses are in place.

Data does exist for fish and aquatic life. Where waters are partially or not meeting designated uses,